WHAT IS CLAIMED IS:

1. A system for fabricating a part, comprising:

a computer operable to control the fabrication of a three-dimensional part using digital engineering data;

a deposition station operable to deposit successive two-dimensional layers of material to fabricate the three-dimensional part, the deposition station comprising:

a substrate on which to fabricate the three-dimensional part;

a welding-based deposition system comprising a welding torch;

a laser-based deposition system comprising a laser head;

a plasma powder cladding system comprising a plasma torch; and

a multi-axis robot operable to, when directed by the computer, utilize one of the welding-based deposition system, laser-based deposition system, and plasma powder cladding system to deposit any of the two-dimensional layers of material; and

a machining station operable to remove at least a portion of one or more of the deposited two-dimensional layers of material, the machining station comprising:

a multi-axis milling machine; and

an automatic tool changer associated with the milling machine, the milling machine operable to, when directed by the computer, select from a plurality of machining tools associated with the automatic tool changer for use in the milling machine.

2. The system of Claim 1, further comprising an inspection station operable to inspect the three-dimensional part for dimensional accuracy at any time during the fabrication of the three-dimensional part.

3. The system of Claim 1, wherein the inspection station is operable to scan a completed part and wherein the computer is operable to generate and store a

solid CAD model of the completed part for subsequent use in fabricating a new part of the same geometrical configuration.

4. The system of Claim 1, wherein the welding-based deposition system further comprises a wire feeder and wherein the welding-based deposition system is selected from the group consisting of a gas metal arc welding system and a gas tungsten arc welding system.

5. The system of Claim 1, wherein the laser-based deposition system comprises a Nd:YAG laser deposition system.

6. The system of Claim 1, wherein the laser-based deposition system comprises a diode laser deposition system.

7. The system of Claim 1, wherein the substrate comprises a two rotary axis shifting platform.

8. The system of Claim 1, wherein the multi-axis milling machine comprises a four axis CNC milling machine having a three axis work table.

9. The system of Claim 1, wherein the multi-axis milling machine is operable to perform a machining process selected from the group consisting of milling, drilling, boring, reaming, tapping, grinding, polishing, and vertical turning.

10. The system of Claim 1, wherein the computer comprises a CAD/CAM application operable to store a solid CAD model and control the deposition station and the machining station based on the solid CAD model to fabricate the three-dimensional part.

11. The system of Claim 10, wherein the computer is operable to control the heat input into any of the two-dimensional layers based upon the geometry of a predetermined CAD Data file from the solid CAD model.

12. The system of Claim 1, wherein the deposition station further comprises a powder delivery system, the powder delivery system comprising:

a hopper adapted to contain a powder and continuously feed the powder through an output of the hopper;

a metering device adjacent the output of the hopper, the metering device adapted to receive the powder continuously fed through the output of the hopper; and

a vacuum powder removal device operable to remove the powder from the top surface via a vacuum.

13. The system of Claim 12, wherein the computer is operable to vary an amount of the powder continuously fed to the metering device in response to monitoring material deposition by the laser-based deposition system.

14. The system of Claim 1, wherein the laser-based deposition system further comprises an infrared sensing device operable to sense a molten pool during material deposition by the laser-based deposition system, the infrared sensing device operable to provide feedback to the computer for substantially real-time control of the molten pool.

15. A method for fabricating a part, comprising:

generating a solid model representing a three-dimensional part on a computer;

generating a plurality of electronic two-dimensional layers based on the solid model;

selecting a deposition system to use for depositing respective two-dimensional layers of material corresponding to each of the electronic two-dimensional layers, the deposition system selected from the group consisting of a welding-based deposition system, a laser-based deposition system, and a plasma powder cladding system;

directing a multi-axis robot to obtain a desired deposition device corresponding to the selected deposition system;

successively depositing, via the selected deposition system, the respective two-dimensional layers of material on a substrate; and

intermittently removing, via a multi-axis milling machine controlled by the computer, material from the three-dimensional part based on the solid model during fabrication.

16. The method of Claim 15, further comprising intermittently inspecting the three-dimensional part for dimensional accuracy during the fabrication of the three-dimensional part.

17. The method of Claim 15, wherein electronically generating the plurality of electronic two-dimensional layers comprises creating a plurality of CAD data files.

18. The method of Claim 15, wherein the welding-based deposition system is selected from the group consisting of a gas metal arc welding system and a gas tungsten arc welding system.

19. The method of Claim 15, wherein the laser-based deposition system comprises a Nd:YAG laser deposition system.

20. The method of Claim 15, wherein the laser-based deposition system comprises a diode laser deposition system.

21. The method of Claim 15, further comprising controlling, by the computer, a two rotary axis shifting platform during fabrication of the three-dimensional part.

22. The method of Claim 15, wherein the multi-axis milling machine comprises a four axis CNC milling machine having a three axis work table.

23. The method of Claim 15, wherein intermittently removing material comprises intermittently performing a machining process selected from the group consisting of milling, drilling, boring, reaming, tapping, grinding, polishing, and vertical turning during fabrication of the three-dimensional part.

24. The method of Claim 15, further comprising controlling, by the computer, the heat input into any of the two-dimensional layers based upon the geometry of a corresponding electronic two-dimensional layer.

25. The method of Claim 15, wherein the laser-based deposition system comprises an infrared sensing device operable to sense a molten pool during material deposition by the laser-based deposition system, the method further comprising providing feedback, via the infrared sensing device, to the computer for substantially real-time control of the molten pool.

26. The method of Claim 15, wherein the deposition device is selected from the group consisting of a weld torch, a plasma torch, and a laser head.

27. A system for fabricating a part, comprising:

a deposition station operable to deposit successive two-dimensional layers of material to fabricate a three-dimensional part, the deposition station comprising:

a substrate on which to fabricate the three-dimensional part;

a welding-based deposition system comprising a welding torch;

a laser-based deposition system comprising a laser head;

a plasma powder cladding system comprising a plasma torch; and

a multi-axis robot operable to, when directed by the computer, utilize one of the welding-based deposition system, laser-based deposition system, and plasma powder cladding system to deposit any of the two-dimensional layers of material.

28. The system of Claim 27, further comprising a machining station operable to remove at least a portion of one or more of the deposited two-dimensional layers of material, the machining station comprising:

a multi-axis CNC milling machine; and

an automatic tool changer associated with the CNC milling machine, the CNC milling machine operable to, when directed by the computer, select from a plurality of machining tools associated with the automatic tool changer for use in the CNC milling machine.

29. The system of Claim 27, further comprising an inspection station operable to inspect the three-dimensional part for dimensional accuracy at any time during the fabrication of the three-dimensional part.

30. A system for fabricating a part, comprising:

means for generating a solid model representing a three-dimensional part;

means for generating a plurality of electronic two-dimensional layers based on the solid model;

means for selecting a deposition system to use for depositing respective two-dimensional layers of material corresponding to each of the electronic two-dimensional layers, the deposition system selected from the group consisting of a welding-based deposition system, a laser-based deposition system, and a plasma powder cladding system;

means for directing a multi-axis robot to obtain a desired deposition device corresponding to the selected deposition system;

means for successively depositing, via the selected deposition system, the respective two-dimensional layers of material on a substrate; and

means for intermittently removing, via a multi-axis milling machine controlled by the computer, material from the three-dimensional part based on the solid model during fabrication.